Exterior







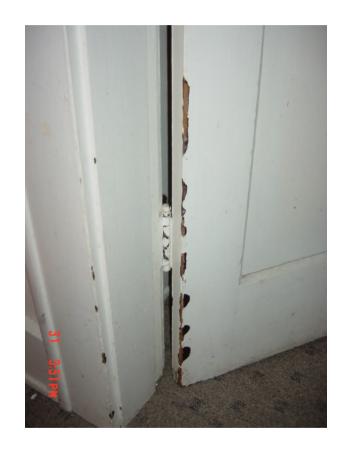
Exterior





Entryway





Living Room





Dining Room



Kitchen







Bedroom 1





Bedroom 2



Bathroom





Basement

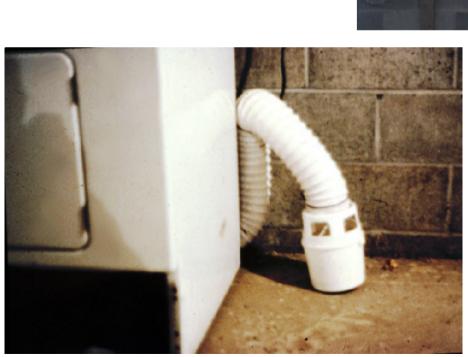






Laundry Room





Crawlspace



Make a checkmark (\checkmark) if the problem appears in the room or area. For deteriorated paint and water damage, indicate the extent of the problem (see instructions) Use the extra rows to identify any other hazards you notice. Put an asterisk (*) above any room(s) where a child sleeps or plays. Circle (\bigcirc) where you photograph a problem.

ROOM OR AREA

Completed Visual Survey Report

www.cehrc.org

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PROBLEM	I	Exterior	Power	Entryway	Living Room¥	Dining Room	Kitchen **	Bedroom I	Bedroom 2 *	Bedrooms	Bathroom I	Bathraon 2	Basement	Laundry Room	Crowlspace
Deteriorated	Walls	(Z)(E)											(E)		
paint	Windows, door, or trim	(1)		0									8		
	Paint chips on floor	0	7777		,,,,	,,,,	,,,,		,,,,	,,,,,	,,,,	7777	,,,,	,,,,	,,,,
		\bigcirc													
Cockroaches									\bigcirc						
Rodents															
Holes in wall									\bigcirc						
Mold/	Obvious source of moisture													0	
Mildew	No obvious source of moisture													,	
Water Damage	e: walls wet/newly stained	(H)		H					,		(\mathbb{C})			3	
Strong musty s				✓											\checkmark
Natural gas/sev	ver gas smell												V		
Unvented gas o	ven/dryer/heater					(j)								\bigcirc	
Worn-out carp	eting														
Other: 7	rash at Corner	\bigcirc													
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Make a checkmark (\checkmark) if the problem appears in the room or area. For deteriorated paint and water damage, indicate the extent of the problem (see instructions) Use the extra rows to identify any other hazards you notice. Put an asterisk (*) above any room(s) where a child sleeps or plays. Circle (\bigcirc) where you photograph a problem.

ROOM OR AREA

Completed Visual Survey Report

www.cehrc.org

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PROBLEM	1	Exterior	Power	Entryway	术iving Room¥	Dining Room	Kitchen *	Bedroom I	Bedroom 2 *	Bedroems	Bathroom I	Bathraon 2	Basement	Laundry Room	Crowlspace
Deteriorated	Walls	H											(E)		
paint	Windows, door, or trim	0		0											
	Paint chips on floor	0													
Soil with no gra	ass or mulch	\bigcirc													
Cockroaches							0		0						
Rodents															
Holes in wall									0				12000		
Mold/	Obvious source of moisture										(1)			0	
Mildew	No obvious source of moisture			0											
Water Damage	e: walls wet/newly stained	(H)		(H)							(L)			(M)	
Strong musty s	mell			V											
Natural gas/sev	wer gas smell												V		
Unvented gas o	oven/dryer/heater						}							\bigcirc	
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Healthy Homes for Community Health Workers Make the Connections – See the Big Picture Exercise

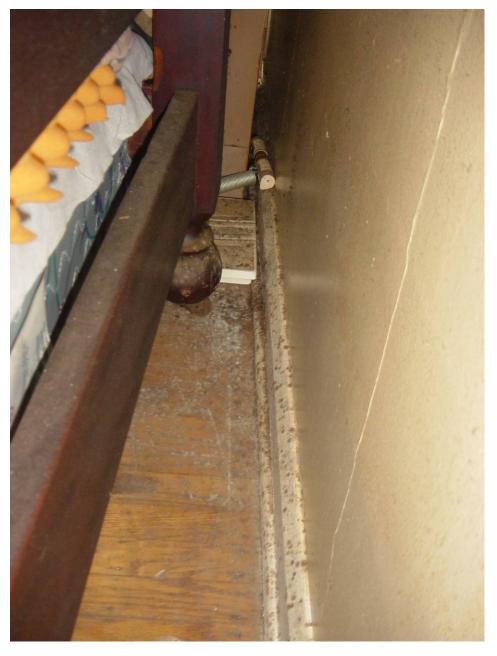
Health Problem	<u>Housing Hazards</u>	Corrective Action	Resources
Asthma	Damp indoor spaces	Keep it Dry	Homeowner
Allergies	Cockroaches	Keep it Clean	Renter
Problems that affect the brain, like lowered IQ, and	Dust mites	Keep It Pest Free	Landlord
behavior and learning problems	Mold	Keep It Ventilated	Community activists
Lung Cancer	Pet dander	Keep It Safe	Health and housing programs that provide
Death	Mice	Keep It Contaminant-Free	funding to homeowners or renters
Injuries	Rats	Maintain the home	Nurses and doctors
Poisoning	Trash		Property management
	Lead dust Paint chips		Housing contractors
	Lead in soil		Code enforcement
	Carbon monoxide		
	Sharp		

Healthy Homes for Community Health Workers Exercise: Identify the Healthy Housing Problems

Instructions: This can be done as either a large group or in a small group format. If large group: put photos up on projector and go through each one with group. If small group: break up into small groups according to instructor's directions. Each group gets a set of photos. Identify healthy homes problems and their potential source. Avoid writing on the photos. After 15 minutes, the instructor will review the photos and the answers with the class.

#1 Stained drywall in basement	Drywall indicates water damage. Wood may have grey covering possibly indicating mold (or maybe dirt). Note basement floor and AC water drain to sewer.	Drywall may be touching concrete floor and absorbing moisture through it when groundwater high. Also AC drain (white tube may be cause. Sewer could back-up too. Drywall in basement is rarely good.
#2 Bedroom Wall	Cockroach frass on baseboard behind headboard on bed. Frass is urine and feces from cockroaches.	Cockroaches are probably hiding in the wall. They only travel 5 to 10 feet from nest unless disturbed.
#3 Dryer exhaust inside	Dryer exhaust vents into room. Very dangerous if gas dryer. But even if electric, the moisture and odors can be a major problem.	Someone may be trying to save energy by keeping heat inside home. Bad idea. May be allowed by codes if label on dryer allows it.
#4 Trash on Porch	Debris on a porch attracts rats, mice and cockroaches.	Cardboard is like an apartment complex for cockroaches.
#5 Downspout and Basement	The downspout is disconnected. The water makes the foundation wet. Look through the basement window and see the mold on the inner wall of the basement	Rain water becoming ground water
#6 Boric acid on floor	There is a small mouse hole in wall just above baseboard. Note how it is gnawed. The powder is boric acid that someone put down to kill the mouse.	Boric acid is ineffective in thick layers, even for cockroaches. Only a dusting works. Plus boric acid is dangerous to kids. A couple teaspoons of boric acid can kill a toddler.
#7 Stucco room on roof	Smoke from white stack can blow into house. Two vents on either side are low and appear to have cap on them.	Bad design. It was probably an add-on. Also note drainage problems
#8 Serving cart	Cart with pesticides (Garden Fogger), spray paint, cooking pans and cutting boards. Pesticide contamination is a possibility.	Pesticide – garden fogger
#9 Bathroom with loose tile	Four rows of tiles have separated from wall. New shower water will get behind wall in gap. Major damage below is likely. Note missing tile in lower left corner of photo.	Shower water. Once a problem starts, it is going to get very bad quickly.
#10 Exhaust in attic	Warm, moist air in bathroom is exhausted into attic. In winter, the moisture will condense on insulation ruining it. In summer, the attic will be covered with mold from condensate. Mold grows better in summer.	Bad installation. Vent exhaust outside not into attic.





Identify the Healthy Home Problem





Identify the Healthy Home Problem





Identify the Healthy Home Problem



Identify the Healthy Home Problem







Identify the Healthy Home Problem

Pediatric Environmental Home Assessment

HOME VISIT EXERCISE ANSWER SHEET

RESIDENT REPORTED INFORMATION

Bolded responses indicate areas of greater concern.

Gene	eral Housing Charac	teristics			
Туре	of ownership	☐ Own house	☐ Market rate rental hsg.	X Subsidized rental hsg.	☐ Shelter
Age	of home	☐ Pre-1950	X 1950 -1978	☐ Post-1978	☐ Don't know
Struc	tural foundation	X Basement	☐ Slab on grade	□ Crawlspace	☐ Don't know
	rs lived in that apply)	□ Basement	☐ 1 st	X 2 nd	□ 3 rd or higher
	Fuel used	☐ Natural gas / LPG	X Oil	□ Electric	□ Wood
Heating	Sources in home	X Radiators	☐ Forced hot air vents	☐ Space heater or oven	☐ Other:
Hea	Filters changed	□Yes	□No	X Don't know	X No filter
	Control	☐ Easy to control heat	X Hard to control heat		
Cool	ing	☐ Windows	X Central/window AC	□ Fans	□ None
	lation all that apply)	X Opens windows	☐ Kitchen & bathroom fans	☐ Central ventilation	

NOTES: PARENT REPORTS BIGGEST CONCERNS ARE DUST AND MICE

Indoo	Pollutants				
Mold a	and moisture	☐ Uses dehumidifier☐ No damage	X Uses vaporizer or humidifier	☐ Musty odor evident	X Visible water / mold damage
	Presence	X No pets	□ Cat #	□ Dog #	Other:
Pet	Management	☐ Kept strictly outdoors	☐ Not allowed in patient's bedroom	☐ Full access in home	☐ Sleeping location:
	Cockroaches	□ None	☐ Family reports	X Evidence seen	Present in X kitchen X bedroom D other
Pests	Mice	□ None	X Family reports	X Evidence seen	Present in X kitchen ☐ bedroom X other
Pe	Rats	X None	☐ Family reports	☐ Evidence seen	Present in ☐ kitchen☐ bedroom ☐ other
	Bedbugs	X None	☐ Family reports	☐ Evidence seen	Present in ☐ bedroom ☐ other
Lead	paint hazards	☐ Tested and passed	☐ Tested, failed, and mitigated	☐ Not tested/Don't know	X Loose, peeling, or chipping, paint
Asbes	tos	☐ Tested – None present	☐ Tested, failed, and mitigated	X Not tested/Don't know	X Damaged material
Rador	1	☐ Tested and passed	☐ Tested, failed, and mitigated	X Not tested/Don't know	☐ Failed test but not mitigated
Health	and Safety Alarms	X Smoke alarm working and well placed	☐ CO alarm working and one on each floor	□ CO alarm does not log peak level	☐ No smoke alarm X No CO alarm
	co smoke exposure NOTES	X No smoking allowed	☐ Smoking only allowed outdoors	☐ Smoking allowed indoors ☐ bedroom ☐ playroom	☐ Total # smokers in household: ☐ Mother smokes
Other	irritants	X None	☐ Air fresheners	□ Potpourri, incense, candles	Other strong odors:
	of cleaning	☐ Standard Vacuum (non HEPA)	X HEPA vacuum	☐ Damp mop and damp dusting	☐ Sweep or dry mop

NOTES: HOUSEHOLD IS NON-SMOKING BUT EXPOSED TO SMOKE FROM APT. BELOW; NEED TO RE-SEAL FOR MICE;

HAS SMOKE ALARM BUT NOT CO ALARM. MAY HAVE LEAD PAINT AND REPAIRS TO IT APPEAR TO HAVE FAILED

NURSE OBSERVED INFORMATION

Bolded responses indicate areas of greater concern.

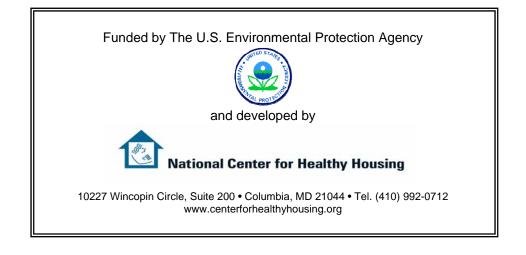
Home Env	vironment				
Drinking \	Water Source	X Public water system	☐ Household Well		
Kitchen	Cleanliness	□ No soiling	☐ Trash or garbage sealed	X Trash or garbage not sealed	☐ Wall/ceiling/floor damage
Kitc	Ventilation	☐ Functioning stove exhaust fan/vent	☐ Mold growth present	☐ Broken stove exhaust fan/vent	X No stove exhaust fan/vent
Bathroom	1	X Functioning exhaust fan/vent/window	☐ Mold growth present	☐ Needs cleaning and maintenance	☐ Wall/ceiling/floor damage
Basement		□ None/No Access	☐ Mold growth present	X Needs cleaning and maintenance	☐ Wall/ceiling/floor damage
Living Room		X No soiling	☐ Mold growth present	■ Needs cleaning and maintenance	☐ Wall/ceiling/floor damage
Laundry a	area	X None	☐ Well maintained	☐ Dryer not vented	☐ Hang clothes to dry
Sleep Env	vironment				
Patient's	sleep area	X Own room	☐ Shared # in room	☐ Other	
# Beds		0 0	X 1	□ 2	☐ More than 2
Allergen impermea encasings	able s on beds	☐ On mattress and boxspring (zippered)	X On mattress only (zippered)	☐ On mattress (not zippered)	□ No mattress covers
Pillows		X Allergen-proof	☐ Washable	☐ Feather/ down	
Bedding		X Washable	☐ Wool/not washable	☐ Feather/ down	
Flooring		X Hardwood/Tile/Linoleum	X Small area rug	☐ Large area rug	☐ Wall-to-wall carpet
Dust/mole	d catchers	X Stuffed animals/washable toys X No clutter	□ Non-washable toys	□ Plants	□ Other
Window		X Washable shades/ curtains	X Washable blinds	☐ Curtains/ drapes	□ No window/ poor ventilation
Other irrit	tants	☐ Abundant cosmetics and fragrances			

Home Safety				
* can indicate housing code violations				
General				
Active renovation or remodeling	X Yes IN NEIGHBORHOOD	□ No		
*Stairs, protective walls, railings, porches	X Yes	□ No		
*Hallway lighting	X Adequate	☐ Inadequate		
Poison control number	☐ Posted by phone	X Not posted by phone		
**Family fire escape plan	☐ Developed and have copy available	X None		
Electrical appliances (radio, hair dryer, space heater)	☐ Not used near water	X Used near water BATHROOM		
Matches and lighters stored	X Out of child's reach	☐ Within child's reach		
Exterior environment	☐ Well maintained	X Abundant trash and debris	☐ Chipping, peeling paint	☐ Broken window(s)

NURSE OBSERVED INFORMATION (continued)

Home Safety * can indicate housing code violations			
Young Children Present	X Yes	□ No	
Coffee, hot liquids, and foods	X Out of child's reach	☐ Within child's reach	
Cleaning supplies stored	☐ Out of child's reach	X Within child's reach	
Medicine and vitamins stored	☐ Out of child's reach	X Within child's reach	
Child (less than six years old) been tested for lead poisoning	☐ Within past 6 months Result:	X Within past year or more. When? <1 year Result: <10	□ No
Child watched by an adult while in the tub	☐ Always	X Most of the time	□ No
*Home's hot water temperature	□ <120 F	□ >120 F	X Don't know
Non-accordion toddler gates used	☐ At top of stairs	☐ At bottom of stairs	□ No
Crib mattress	☐ Fits well	☐ Loose	X NA
Window guards	□Yes	X No	
Window blind cords	☐ Split cord	X Looped cord	

NOTES: LOTS OF DUST FROM NEIGHBORHOOD CONSTRUCTION; HAS WINDOWS CLOSED AND A/C ON BUT STILL A PROBLEM; LOTS OFEXPOSED DIRT OUTSIDE DUE TO CONSTRUCTION; CABINET WITH CLEANING SUPPLIES IS NOT LOCKED AND IS AT CHILD LEVEL



With thanks to

N • E ▲ E • T • F

The National Environmental Education & Training Foundation

We credit its Environmental Management of Pediatric Asthma: Guidelines for Health Care Providers and model Pediatric Environmental History Form



The Center for Healthy Homes and Neighborhoods at Boston University
We credit its model Pediatric Asthma-Allergy Home Assessment form





Healthy Housing Solutions Inc.

HEALTHY HOMES FOR COMMUNITY HEALTH WORKERS



Healthy Housing Solutions Inc.

LEARNING OBJECTIVES

DESCRIBE at least one housing condition and the associated health problems.

IDENTIFY one population at higher risk for housing related disease and injury.

DESCRIBE two steps to reduce household hazards.



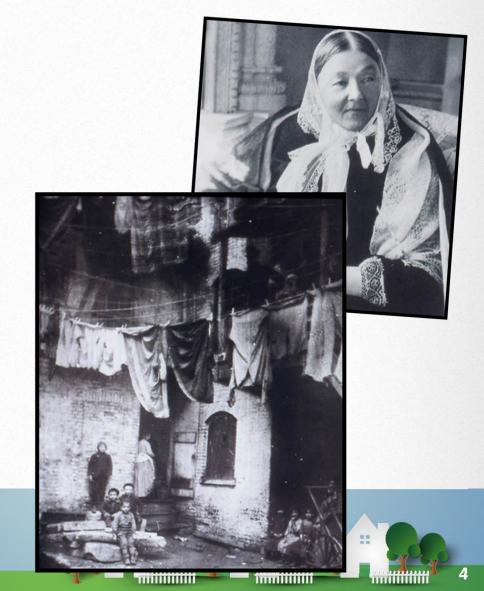




LINK BETWEEN HOUSING & HEALTH

"The connection between health and the dwelling of the population is one of the most important that exists".

Florence Nightingale





making homes **healthier**

WHY DO WE CARE?

- Housing impact on health:
 - Physical, chemical, biological exposures
 - Psychological
- Young children spend about
 70% of the time in their home.







Home is where the heart is.

Pliny

It may be frail; its roof may shake; the wind may blow through it; the storms may enter; the rain may enter – but the King of England cannot enter; all his forces dare not cross the threshold of the ruined tenement.

William Pitt

There's no place like home.

Dorothy, Wizard of Oz

Home is the place where, when you have to go there, They have to take you in.

Robert Frost

One of our deepest needs is to be at home.

Timothy Radcliffe

The strength of a nation derives

from the integrity of the home.

Confucius

Where thou art, that is home. Emily Dickinson

He is happiest, be he king or peasant, who finds peace in his home.

Johann Wolfgang von Goethe



making homes **healthier**



ASTHMA TRIGGERS



House dust mites



Mice



Cats



Tobacco smoke



Dogs



Mold



Cockroaches





Mold in damp indoor environments is associated with:

- Nose and throat irritation
- Coughing
- Wheezing
- Asthma
- Pneumonia







Tobacco smoke can trigger asthma attacks and cause cancer and death.

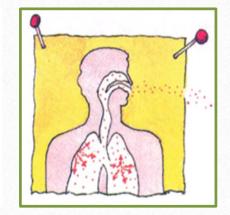






Lead in paint, dust and soil can cause lead poisoning which can result in lowered IQ, behavior and learning problems and death

Radon is a naturally occurring gas that comes from the ground into a house. Radon can cause lung cancer



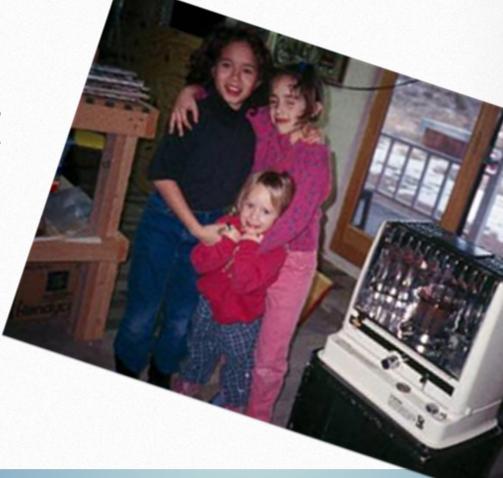




CARBON MONOXIDE

 Can build up in a house if a furnace is not working right or an un-ventilated gas heater is used

 High levels can lead to confusion and/or death







Falls

Poisonings

Fires

Burns

Choking

Suffocation







MOST VULNERABLE POPULATION

Children

- Spend most time indoors
- Eat and drink more than adults
- Still developing
- Behave differently

Seniors

- Spend most time indoors
- Breathing problems are easily triggered
- Falls are more common
- Overheat







HEALTHY HOMES PRINCIPLES







WHAT IS HEALTHY HOUSING?

Healthy Housing is:

- Designed,
- Constructed,
- Maintained, and
- Rehabilitated

in a manner that is conducive to good occupant health.







WHY START WITH PEOPLE?

What good are they?

What's difficult about people?

How can you deal with people?















making homes
healthier



NO PLACE LIKE HOME!

Resident Overall Opinion of Structure, American Housing Survey – National 2011

	Worst					Best
Type of resident	1	2-4	5-7	8	9	10
All	0.6%	2.0%	23.6%	27.2%	16.0%	30.6%
Renters	1.1%	3.7%	32.8%	27.8%	12.7%	21.9%
Below Poverty	1.5%	4.4%	29.5%	24.4%	11.3%	28.9%







WHAT IS A HOUSE?







www.healthyhousingsolutions.com/hhtc



HOMES SHELTER US FROM:



Animals and insects



Wind



Sun



Rain (sleet, snow)



Cold or hot air



Dust







WE HAVE SYSTEMS TO:

- Add heat
- Remove heat
- Ventilate
- Maybe add or remove humidity



SEVEN PRINCIPLES TO MAKE A HOME HEALTHY

Key reference:

Help Yourself to a Healthy Home







Steps to Healthier Homes

KEEP IT DRY



Keep It:



1. Dry



2. Clean



3. Pest-Free



4. Ventilated



5. Safe



6. Contaminant-Free



7. Maintained



Making it Work





LEARNING OBJECTIVES

Name one health hazard in the home that is related to excessive moisture.

Identify two sources of moisture in the home.

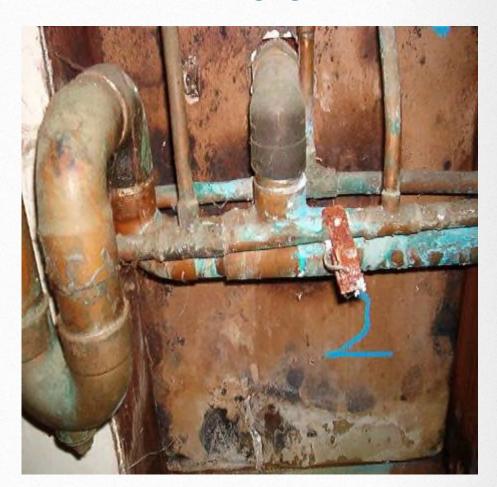
Describe two strategies for controlling moisture in the home.





MOLD & MOISTURE HEALTH EFFECTS

- Upper respiratory tract symptoms
- Coughing
- Wheezing
- Asthma symptoms
- Hypersensitivity pneumonitis







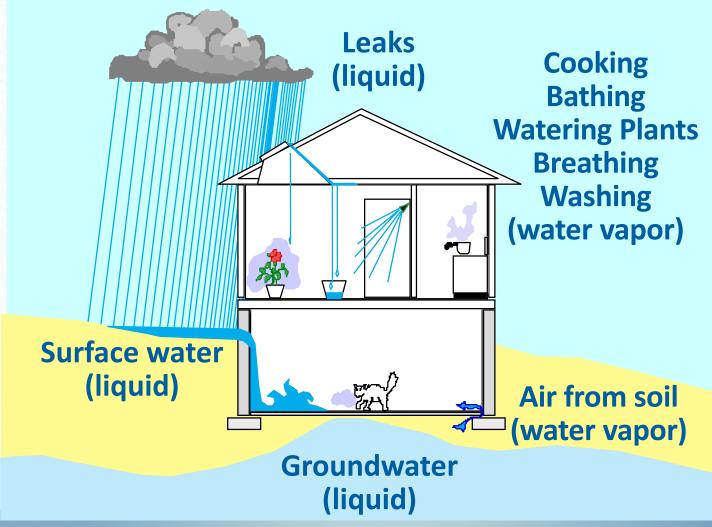


MOISTURE SOURCES

- Poorly managed rainwater/groundwater
- Plumbing leaks
- Condensation on surface
- Construction moisture



How Water Enters a Building









RAIN FROM THE OUTSIDE









RAIN FROM THE OUTSIDE



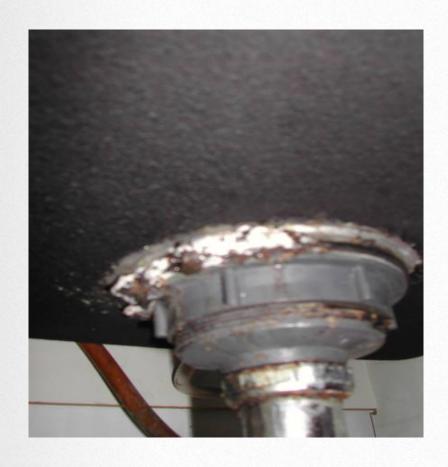








Plumbing Leaks









CONDENSATION WHEN COLD OUTSIDE



Mold due to poor insulation or wind blowing through insulation.

Mold around window where there is no insulation.







KEEP IT DRY - WHAT YOU CAN DO

Renter/Owner

- Use ventilation fans
- Wipe down shower walls after use
- Turn on air conditioning
- Use a dehumidifier
- Clean up mold
- Throw wet items away

Landlord

- Clean up mold
- Make sure downspouts direct water away from foundations
- Repair leaking roofs, walls, doors, or windows





CLIENT RECOURSE HELP YOURSELF TO A HEALTHY HOME

Information for clients (page 20):

Cleaning up mold and using a HEPA vacuum







CLIENT RECOURSE HELP YOURSELF TO A HEALTHY HOME

Information for clients (page 21):

Specific instructions and cautions for using bleach to clean up mold

Mold & Moisture

ACTION STEPS continued

Clean hard surfaces with a mix of laundry detergent or dishwashing soap and water. You may have to scrub with a brush. Rinse the area with clean water and dry quickly by wiping away the water and using a fan. Chlorine bleach will kill mold growing on surfaces. It does not kill mold spores in the air and dead mold can still cause allergic reactions. If you use bleach, follow these steps:

- · Scrub the surface first with water and detergent
- Water down the chlorine bleach—use about one cup of bleach to ten cups of water.
- Spray or sponge the bleach on the moldy area. Leave it on about 15 minutes, then rinse the area and dry quickly,
- Never mix chlorine bleach with products that contain ammonia or acids because you will make a deadly gas.
- Keep chlorine bleach out of the reach of pets and children.
- Remember, chlorine bleach takes the color out of most fabrics and rugs. Be careful not

The Cooperative Extension Service or your local or state health department can provide more information on mold. Renters should talk to their landlords. Some home insurance policies will pay to fix mold damage. Fire and water damage restoration professionals can help you fix the damage. Cleaning up a big mold problem may cost several thousand dol-



What About Testing for Mold?

You may have heard about so-called toxic molds that can cause severe health problems. This may cause worry if you know that mold is growing in your home. See your doctor if you think mold is causing health problems for you or your family. Many experts agree that health problems come more from the length of time you've been in contact with the mold and the amount of mold in your home than the type

No matter what kind of mold you have, you need to get rid of it and fix the moisture Problems that made it grow. Most experts think it's better to spend your time and money on cleaning up the problem than on testing. So act quickly to get rid of the mold and mois. ture by following the Action Steps in this





Steps to Healthier Homes

KEEP IT CLEAN



Keep It:



1. Dry



2. Clean



3. Pest-Free



4. Ventilated



5. Safe



6. Contaminant-Free



7. Maintained



Making it Work







LEARNING OBJECTIVES

List one contaminant or allergen that is frequently found in house dust and its health effects.

Describe one way allergens or contaminants get into house dust.

Identify at least two strategies to reduce allergens or contaminants in house dust.





WHY IS CLEAN AND EASILY CLEANABLE IMPORTANT?

- Reduce exposure to:
 - Chemical contaminants
 - Allergens
 - Pest droppings and urine
 - Pesticides
 - Heavy metals such as lead and arsenic
- Reduced harborage for pests









Dust mites in humid and dry buildings





making homes healthier

Dust mite control

- Keep humidity at or below 50%
- Wash bedding
- Use mattress and pillow encasements
- Freeze soft toys and small items
- If possible, replace carpets with hard surfaces, and remove draperies and upholstery







WHERE DOES HOUSE DUST COME FROM?

Brought-In

Home-Grown

- Lead Dust
- Dust Mites

Resident-Made

- Garbage
- Clutter







BROUGHT IN DUST

- Four Steps to Reduce
 - Hard Surface Walkways
 - Outside Grate-Like Mat
 - Inside Carpet Pad
 - Hard Surface Floor











SHOES OFF - LESS DUST ENTERS









HEALTHY CLEANING

Don't dry dust or dry sweep

Vacuuming:

- Low-emission vacuum with beater bar
- Very slowly (or use vacuum with dirt finder)

Wet cleaning:

- Use "elbow grease"
- Frequently change water







PROBLEMATIC CLEANING MEASURES

Carpet cleaning

Overuse of anti-microbials

Sanitizers

Air fresheners





CLUTTER

- What's the problem?
- What do we do to help?
 - Organize home, shelves, and storage bins.
- Hoarding?
 - What's the psychological aspect of this?





KEEP IT CLEAN WHAT YOU CAN DO

Renter/Owner

- Vacuum or wet clean floors
- Use a damp cloth for dusting
- Wash bed linens every
 1-2 weeks in hot water
- Use a walk-off mat

Landlord

- Seal cracks and holes
- Consider hard surface floors that show dust more clearly







KEEP IT CLEAN WHAT YOU CAN DO

Renter/Owner

- Take shoes off at the door
- Invest in a good HEPA vacuum that has a beater bar on the bottom and can be emptied quickly and thoroughly
- Use plastic boxes to store clutter
- Use allergen-free mattress and pillow covers for children with asthma or allergies







Steps to Healthier Homes

KEEP IT PEST-FREE





1. Dry



2. Clean



3. Pest-Free



4. Ventilated



5. Safe



6. Contaminant-Free



7. Maintained



Making it Work







LEARNING OBJECTIVES

Name one illness or injury associated with pest infestation.

Identify one clue of pest infestation.

Identify the two strategies associated with an IPM approach.







HEALTH EFFECTS OF PESTS

Asthma

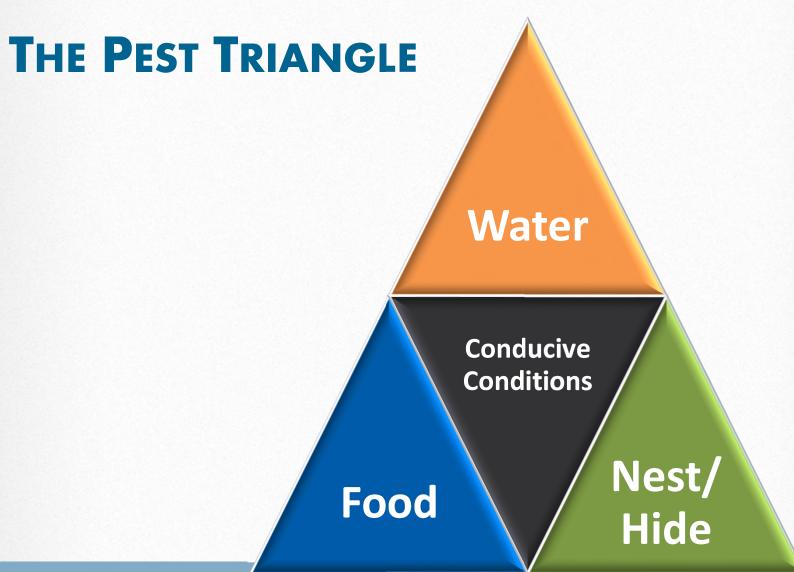
Infectious diseases

Health effects greater on children













HOW COMMON ARE PESTS?

American Housing Survey (2011)

All Housing

- 1.0% Rats
- 11.1% Mice
- 0.6% Rodents, unsure of type

Below Poverty

- 1.8% Rats
- 12.5% Mice
- 1.0% Rodents, unsure of type



Rat feces in insulation

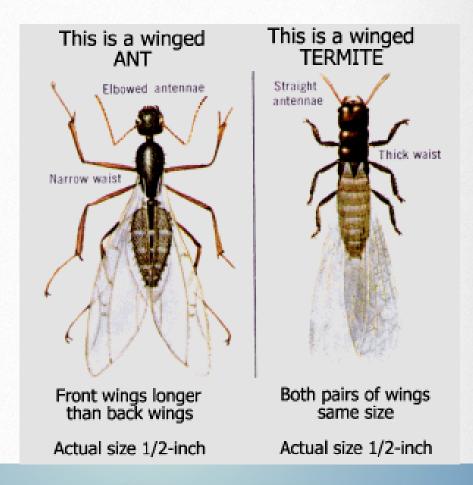






HOW DO WE CONTROL THEM?

- Prevention
- Sanitation
- Physical controls
- Ongoing monitoring



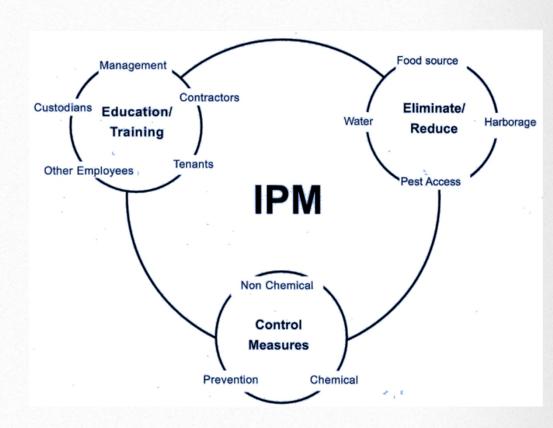






INTEGRATED PEST MANAGEMENT

- Best practice
- Multiple tactics
- Effective control
- Least risk to the environment
- Least exposure of nontarget organisms
- Economic sustainability









REDUCE PESTICIDE USE

Pest pressure can drive people to unsafe use of pesticides.

- Too much
- Too many
- Wrong kind unsafe & Illegal







IPM: STEP-BY-STEP

- Inspection & Identification
- Exclusion & Denial
- Education
- Sanitation
- Physical control
- Monitoring









1. INSPECTION & IDENTIFICATION

- Thorough inspection
- Identification of pests found









2. EXCLUSION AND DENIAL

- Stoppage
- Inspection
- Holes filled
- Stuff-It
- Silicone Caulk
- Spackle, etc

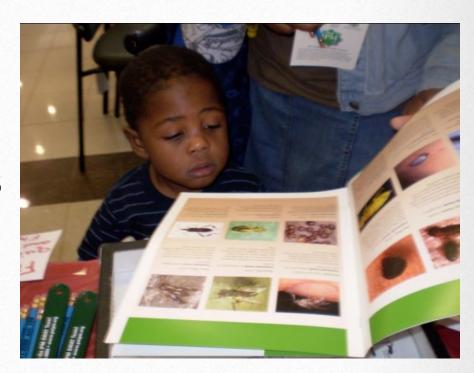






3. EDUCATION

- Understand pests
- Control what, how, and when
- Safe vs. unsafe practices
- Educating residents
- Choosing PCO's
- Training PCO's







4. SANITATION

- Food
- Water
- Harborage



Photo: City of Houston Bureau of Children's and Environmental Health







5. PHYSICAL CONTROL

- Identify & assess problem
- Same strategy
- Different tactics
 - pest specific

Photo: City of Houston Bureau of Children's and Environmental Health







REDUCE EXPOSURE

Choose safer products

- Roach baits
- Gels
- Dusts
- Glueboards and Snap Traps



6. MONITORING

- Keep looking for pests
- Spot reinfestations
- Place in corners
 - Behind appliances
 - Under sink
 - Under cover!
- Do date & mark
- Don't disturb











COCKROACH CONTROL

- Habitat modification
- Monitors
- Dust and caulk
- Baits and gels
- Insect growth regulators
- Sticky traps











RODENT CONTROL

- Rodents are mammals like us
- Think like a rodent
- Not all rodents are the same
 - Mice curious & persistent
 - Rats cautious & smart
 - Squirrels outdoors







BED BUGS - DON'T PANIC

- Can be avoided and eliminated
- Every skin irritation or bite is not bed bugs
- You can see them.
- Do not cause or spread diseases.
- Heat and/or steam can kill them.
- Protocols and communication key to control







BEDBUGS - CONTROL

- Exclusion
- Preparation
- Traps interceptors





BED BUG - TREATMENT

- Inspection
- Vacuum
- Heat or cold
- Pesticides by PCO only
- Re-inspection & retreatment
- Encasements & interceptors







KEEP IT PEST-FREE WHAT YOU CAN DO

Renter/Owner

- Inform landlord about pest problems
- Clean up food or crumbs
- Wrap food and put in the refrigerator, or in a cabinet if tightly sealed

Landlord

- Seal holes in walls, floors and ceilings to prevent pests from coming in
- Use baits, traps, or gels to kill pests







KEEP IT PEST-FREE WHAT YOU CAN DO

Renter/Owner

- Do not leave dirty dishes out overnight
- Sweep, mop, and vacuum regularly
- Take garbage to the trash area at least once a week (everyday if you have pests)

Landlord

- Use baits, traps, or gels to kill pests
- Repair water leaks or damage







KEEP IT PEST-FREE WHAT YOU CAN DO

Renter/Owner

- Clean up clutter that provides hiding places for pests
- Minimize pesticide use
 - Follow directions on the label if you use pesticides
- Don't use sprays or foggers







Steps to Healthier Homes

KEEP IT VENTILATED



Keep It:



1. Dry



2. Clean



3. Pest-Free



4. Ventilated



5. Safe



6. Contaminant-Free



7. Maintained



Making it Work





LEARNING OBJECTIVES

Name two unhealthy conditions associated with poor ventilation.

List two things (e.g. a room, appliance, mechanical system) in a household that need ventilation.

List two household contaminants that can be removed by ventilation.

Describe two ways ventilation reduces air contaminant levels.







WHAT DOES VENTILATION MEAN?

Ventilation means

- Fresh air is circulating in the house
- The house has openings for pollution to escape from inside
- If any portion of air leaves a house the same amount must enter
- Air can be hot, cold, wet, dry, or polluted when it enters or exists a house



WHY WELL VENTILATED?

Pollutants found in concentrations 2-5 times higher indoors than outdoors.





WHY WELL VENTILATED?

Proper ventilation can reduce hazards of:

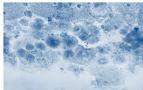
- Volatile organic compounds
- Moisture
- Environmental tobacco smoke
- Particulate matter
- Allergens
- Mold











- Carbon monoxide
- Formaldehyde





WHY VENTILATE

Health effects

- Higher rates of respiratory irritation and illness in housing with poor ventilation
 - Common colds
 - Influenza
 - Pneumonia
 - Bronchitis

...and increased rates of absence from school or work







THINGS THAT NEED EXHAUST VENTILATION

- Bathrooms
- Clothes dryers
- Kitchen ranges
- Boilers, furnaces, hot water heaters
- Fireplaces, wood burning stoves



TESTING EXHAUST FAN: THE CHARMIN METHOD







LOCAL VENTILATION: KITCHEN

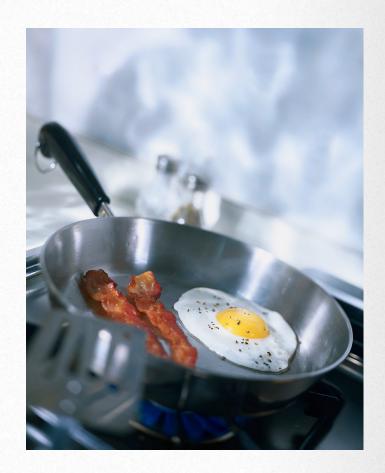
Remove moisture, odors, grease

If gas oven or range, remove products of combustion:

• moisture, CO, NO2

Must be vented to the outside

If it is not reasonably quiet, many people will not use it.







SOURCES OF COMBUSTION CONTAMINANTS

- Oven as heater
- Spillage from furnace, water heater, fireplace
- Ventless heater or fireplace
- Car exhaust from attached garage







COMBUSTION CONTAMINANTS? HEALTH EFFECTS

Carbon Monoxide

- Fatigue, headaches, dizziness, confusion
- The "Silent Killer"
- Nitrogen Dioxide
 - Eye, nose, and throat irritation
 - Shortness of breath





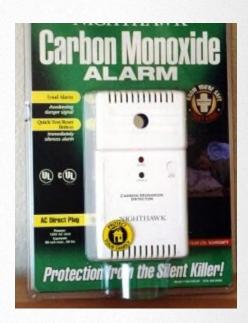


CARBON MONOXIDE ALARMS

Consumer Product Safety Commission (CPSC) recommends:

- Place near sleeping area
- Put on every level of a home to provide extra protection
- Do not install directly above or beside fuel-burning appliances

Combination smoke and CO alarm











CO ALARM INSTALLATION

Should be installed:

- According to the manufacturer's instructions
- Higher placement is preferred
- One CO alarm should be installed in the hallway outside the bedrooms of each separate sleeping area of the home









KEEP IT VENTILATED - WHAT YOU CAN DO

Renter/Owner

- Use exhaust fan when cooking or bathing
- Install a carbon monoxide alarm
- Check and make sure alarms work properly

Landlord

- Have bathroom and kitchen exhaust fans that vent outside
- Install smoke and carbon monoxide alarms







KEEP IT VENTILATED - WHAT YOU CAN DO

Renter/Owner

- Never use charcoal grills inside
- Open a window if you use unvented kerosene or gas heaters

Landlord

- Maintain furnaces
- Have dryers vent outside and keep vents unclogged







Steps to a Healthier Home

KEEP IT SAFE



Keep It:



1. Dry



2. Clean



3. Pest-Free



4. Ventilated



5. Safe



6. Contaminant-Free



7. Maintained



Making it Work





LEARNING OBJECTIVES

Identify the age group at most risk for injuries and falls.

Name the 3 most common home injury related causes of death.

Name at least two locations to look for safety hazards in the home.

Name at least two ways to prevent home injuries.







KEEP IT SAFE

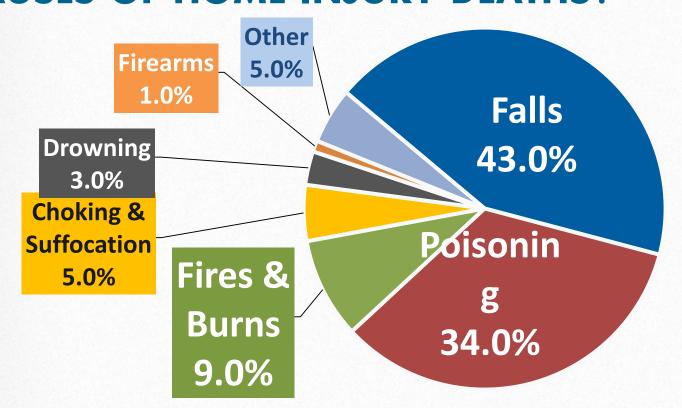
There are many ways to be injured in the home







WHAT ARE THE MOST COMMON CAUSES OF HOME INJURY DEATHS?







WHICH AGE GROUPS ARE MOST SUSCEPTIBLE?

Age Group	Susceptibility
Infants	Choking/suffocation is the highest rate of injury death
Birth – age 14	Nonfatal falls at home
1-14 years old	Highest rate of home injury death is fires and burns
Older adults	Nonfatal falls at home
Adults 80+ years	20 times higher risk for death from injury than younger individuals





Window Safety Guard



Safety Glass?

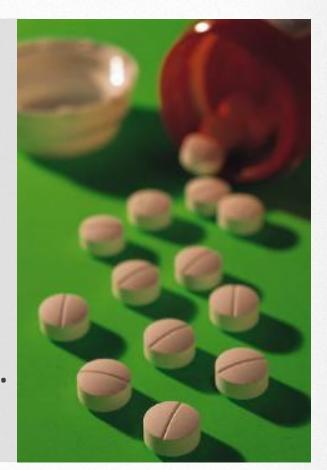






POISONING

- 82% of households keep medicines in unlocked drawers or cabinets.
- 69% of homes with young children store household chemicals in unlocked areas.











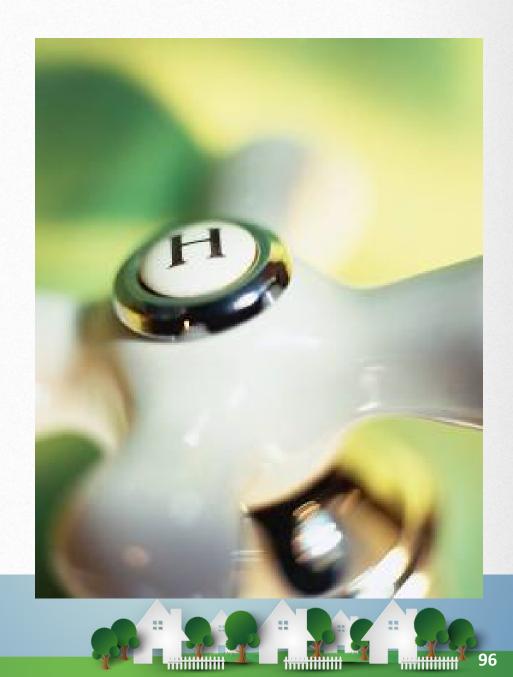




FIRES AND BURNS

House fires

Water heater temperature







CHOKING AND SUFFOCATION





Choke hazards?





Electric shock hazard?







KEEP IT SAFE WHAT YOU CAN DO

Renter/Owner

- Keep floors clear of things that may cause tripping
- Clean up spills to prevent slipping
- Use non-skid mats and throw rugs
- Put safety latches on cabinets and drawers with harmful products
 - Or put products where children can't reach







KEEP IT SAFE WHAT YOU CAN DO

Renter/Owner

- Put a working smoke alarm near every sleeping area
- Put a working fire extinguisher near the kitchen stove
- Keep space heaters out of busy areas and away from things that could catch fire
- Put outlet covers over unused outlets
- Keep young children away from curtains, window-blind cords and extension cords







KEEP IT SAFE WHAT YOU CAN DO

Landlord

- Install smoke alarms near sleeping areas
- Install a carbon monoxide alarm





Steps to a Healthier Home

KEEP IT CONTAMINANT-FREE



Keep It:



1. Dry



2. Clean



3. Pest-Free



4. Ventilated



5. Safe



6. Contaminant-Free



7. Maintained



Making it Work







LEARNING OBJECTIVES

Describe at least two ways that contaminants get into the home.

Identify at least two health effects and their associated contaminant.





CONTAMINANT BUYING DECISIONS

INTENTIONALLY BRING IN:

- Tobacco Smoke
- Pesticides
- Volatile Organic Comp.
- Mercury
- Asbestos
- Meth Labs

ALONG FOR THE RIDE:

- Bedbugs and Mice
- Cockroaches
- Mice
- Formaldehyde
- Lead











WHY AVOID SECOND-HAND SMOKE:

- Children's Health Effects
- Adult Health Effects
- 60% of US population has biological evidence of exposure







TOBACCO SMOKE IN HOMES AND CARS – WHAT CAN YOU DO

- Quit, if you're ready there's help
- Don't smoke around children
- Smoke outside
- Exhaust vent the places where people smoke





VOLATILE ORGANIC COMPOUNDS

- Air Fresheners
- Cleaning Products
- Sprays & Coatings
- Formaldehyde
- Carpets
- Vinyl Floors
- Drywall
- Hobbies
- Home Maintenance









VOLATILE ORGANIC COMPOUNDS

Concentration of VOC's can be 2-5 times greater in the home.

During or immediately after paint stripping activities, VOC levels can be 1,000 times higher than outdoors.







WHY AVOID VOCS?

Potential health effects of VOCs:

- Eye, nose, throat irritation
- Headaches, nausea, coordination
- Liver, kidney, and brain damage
- Some can cause cancers
- Child development















KEEP IT CONTAMINANT-FREE - WHAT YOU CAN DO

Renter/Owner

- Do not smoke in the house
- Do not smoke around children
- Avoid using products of high levels of VOCs
- Have fresh air circulating, if you use a VOC product

Landlord

- Use low VOC paints, carpets, adhesive and other products when renovating
- Make sure that no smoking rules are followed







Steps to a Healthier Home

KEEP IT MAINTAINED



Keep It:



1. Dry



2. Clean



3. Pest-Free



4. Ventilated



5. Safe



6. Contaminant-Free



7. Maintained



Making it Work







LEARNING OBJECTIVE

Name at least one system that requires ongoing maintenance







CONTAMINANT & MAINTENANCE

LEGACY TOXICS:

- Lead-Based Paint
- Asbestos
- Chromated Copper Arsenate Wood
- Mercury
- Pesticide Residues

CREATED OR GROWN:

- Cockroaches
- Mice and Rats
- Mold
- Carbon Monoxide
- Sewer Gas
- And Then There is Radon







MAINTENANCE

- Solid waste
- Water supply
- Sewer system
- Heating/cooling/dehumidification/humidification
- Cooking
- Ventilation
- Rainwater control/drainage
- Structural integrity
- Storage / Organization







MAINTENANCE ACTIONS

- Inspect
- Clean
- Lubricate
- Replace
- Repair
- Organize











How's the filter? A clogged low efficiency filter partially sucked out of the frame.







LEAD AND LEAD-BASED PAINT

Peeling, Chipping Paint / Deteriorated Paint

Dust

Soil

Drinking water

Consumer Products such Pottery, Cribs, Jewelry, Candle Wicks

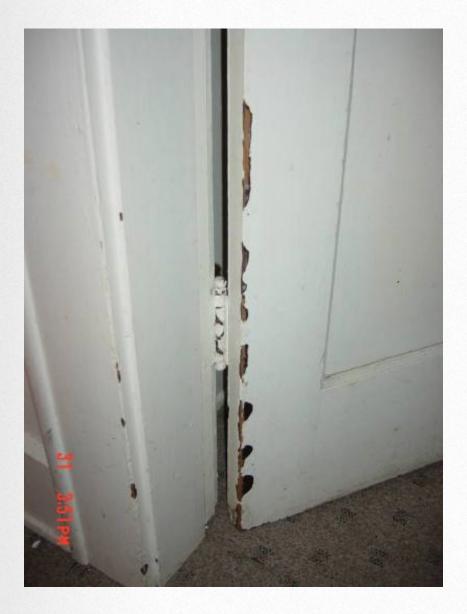
Cultural Items

Contaminated Sites

















WHY AVOID LEAD?

- Reduced IQ
- Learning disabilities
- Impaired hearing
- Reduced attention spans, behavior problems
- Anemia
- Kidney damage
- Damage to central nervous system
- Coma, convulsions, death







LEAD: AGE OF HOUSING MATTERS

Year House Was Built	Percent of Houses with Lead-Based Paint
Before 1940	87 percent
1940-1959	69 percent
1960-1978	24 percent
All US Housing Stock	40 percent







AVAILABLE TESTING

- Paint
- Dust Clearance testing

making homes healthier

Bare soil

Drinking water











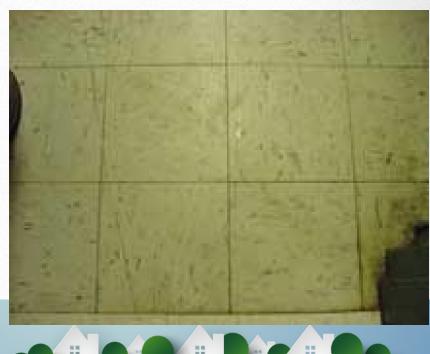


ASBESTOS









WHY AVOID ASBESTOS?

- Health effects:
 - Lung Cancer
 - Mesothelioma
 - Asbestosis

Smokers are at greater risk!

Acc.V Magn | 20 μm 30.0 kV 1200x Janice Haney Carr

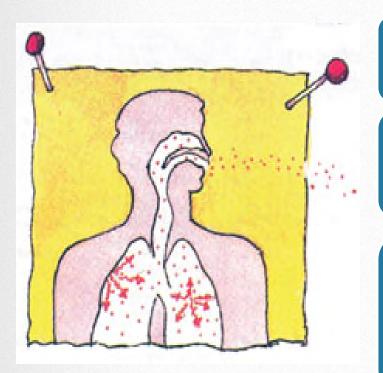
HOW TO HANDLE ASBESTOS

- LEAVE IT ALONE (if in good condition).
- Look for signs of wear or damage avoid touching.
- If damaged or renovation might disturb it, repair or remove by licensed professional.



RADON

A Serious Health Concern



Naturally occurring gas

2nd leading cause of lung cancer after smoking

Leading cause of lung cancer in nonsmokers and people who have never smoked.







HOW RADON GETS INTO A HOME

- ✓ Cracks in solid floors
- ✓ Construction joints
- ✓ Cracks in walls
- ✓ Gaps in suspended floors
- ✓ Gaps around service pipes
- ✓ Cavities inside walls
- ✓ Other openings
- √ Water supply









TESTING FOR RADON



Short Term

Long Term If result is 4
pCi/L or higher
take a followup test OR fix
the home







TESTING FOR RADON

Testing Options:

- Kits
- Hire a professional





Radon Data Card (Write Comments on Back)
In order to Analyze test, all information must be tilled out completely. Please Print) Please Enter Radon Unit Serial No.'s (A) = 879 97 5.
tame JORN SKITH Plone (XXX) XXX-XXXX
Address 4 PRETEND ST. APT 48 Coursey SMICH
Ny SMITH State MD 20 22222
World Greek FOR CHURCH HOOM 30 Bertroom Church
Rental Can Management Clist Floor Cl 2nd Floor Cl Other
Begin) Cap Removed: Date \$ 1/9 1(2) Time \$ 1.13 AM/W (Exact Time)
EndifCop Re-Installed: Date 12.22 Sections 12.23 AMPM (Exect Time)
testing address Differs from mailing address please enter Below.
OCT LONGSACHMOETTS FARE ME- CTE TOO
WASHINGTON DC 20002
ATTA: AECLP





INTERPRETING RADON RESULTS

Short term test > 4 pCi/L

 Take second short term test or long term test

Short term average or long term test >4 pCi/L

Fix home for radon







RESOURCES

State Radon Contacts

www.epa.gov/iaq/whereyoulive.html

Coupons for Test Kits

• 800-SOS-RADON (767-7236)

Radon Mitigation

• 800-644-6999

Other Questions

• 800-55RADON (557-2366)

IAQ Questions

• 800-438-4318







KEEP IT MAINTAINED WHAT YOU CAN DO

Renter/Owner

- Call landlord as soon as you notice moisture, pests, or holes
- Inform your landlord immediately if your toilet overflows
- If you own, replace furnace filters on a regular basis
- Clean your grease filter on your stove's range hood
- In the spring and fall, check gutters and downspouts for clogs caused by leaves







KEEP IT MAINTAINED WHAT YOU CAN DO

Renter/Owner

- Watch for freezing pipes that crack and leak. Fix if you own.
 Contact landlord if you rent.
- Test children under age 6 for lead exposure
- If your home was built before 1978 and paint is peeling or flaking, have it tested for lead
- Before remodeling work, check for lead-based paint







KEEP IT MAINTAINED WHAT YOU CAN DO

Landlord

- Fix leaks or water damaged areas
- Fix all cracks and holes
- Help get rid of pests
- Maintain furnaces in good condition and replace filters on a regular schedule
- Check gutters and downspouts for clogs caused by leaves
- Fix pipes that have frozen, cracked and leaked







LEARNING OBJECTIVES

DESCRIBE at least one housing condition and the associated health problems.

IDENTIFY one population at higher risk for housing related disease and injury.

DESCRIBE two steps to reduce household hazards.







Action Plan

	Date:
Resident:	Contact Person:
Address:	Phone:
Phone:	-

PROBLEM	ROOM(S) OR AREA(S)	ACTION TO TAKE
Deteriorated paint		
Soil with no grass or mulch		
Cockroaches		
Rodents		
Holes in wall		
Mold/mildew		
Water damage		
Strong musty smell		
Natural gas/sewer gas smell		

Unvented gas oven/dryer/heater	
Worn-out carpeting	
Other	